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| SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | SHERMAN, STEPHEN G | |
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DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

10/696,558

Applicant(s)

TOMISAWA ET AL.

Examiner

Stephen G. Sherman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-5, 8-11, 13, 17, 19-20, 22 and 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Engle (WO 02/084637 A1).

Regarding claim 1, Engle discloses a display apparatus comprising:

a three-dimensional display device having a plurality of display surfaces (Figure 2 has foreground screen 1 and background screen 2.);

an image generation device for generating images to be displayed on the three-dimensional display device (Since Figure 2 shows the display device with images 4, 5 and 6 on the display surfaces, then there inherently is an image generation means for generating the images.);

an image specification device for enabling at least part of an image, which is displayed on the three-dimensional display device, to be specified (Figure 2b and page 8, last paragraph explains that a user “selected” and dragged the triangle 4 that was located in the foreground screen shown in Figure 2a. This means that the triangle can

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be specified by the user which would inherently require an image specification device for performing the function.); and

a control device for controlling the three-dimensional display device to display, of the images generated, an image portion specified by the image specification device, on one of the plurality of display surfaces and display, of the images generated, an image portion, which is not displayed on said one of the plurality of display surfaces, image portion, on another display surface of the plurality of display surfaces (Referring to Figures 2a and 2b, the examiner understands that the triangle 4 is selected by the user as shown in Figure 2a. The user then drags the triangle and the portion which is dragged and selected by the user, shown as triangle 5, is then shown on the background display 2, while the original triangle 4 is still displayed on the foreground screen 1. This function would inherently require a control device for controlling such a function.).

Regarding claim 3, Engle discloses the display apparatus according to claim 1, wherein the image specification device enables the image portion to be specified through an external input operation (As explained in the rejection of claim 1, the user applies an external input operation to move the triangle on the display shown in Figures 2a and b.).

Regarding claim 4, Engle discloses the display apparatus according to claim 3, wherein the image specification device includes at least one of a pointing device, a

touch screen, which is superimposed on the three-dimensional display device and a space sensor (As explained above in the rejection of claim 1 the user applies input to the screen to drag the item, meaning that the image specification device would include a touch screen [also see page 4, lines 20-32.]).

Regarding claim 5, Engle discloses the display apparatus according to claim 1, wherein the control device controls the three-dimensional display device to display the image portion specified by the image specification device and the image portion associated therewith on said one of the plurality of display surfaces (AS explained in the rejection of claim 1, when the user touches the screen and specifies the triangle 4 in Figure 2a, the triangle is displayed on one of the display surfaces 1 and 2.).

Regarding claim 8, Engle discloses the display apparatus according to claim 1, wherein the control device generates an operation signal corresponding to the image portion specified by the image specification device (As explained in the rejection of claim 1, when the triangle 4 is selected and dragged then the display device regards this as creating a three dimensional depth and transfers part of the image towards the background screen to create depth, where this function would be need to be controlled by a signal to tell the device to move the triangle to the background display.).

Regarding claim 9, Engle discloses the display apparatus according to claim 1, wherein the control device controls the three-dimensional display device to display part

of the image generated by the image generation device on said one of the plurality of display surfaces in an initial state (Figure 2a shows the triangle 4 in an initial state before the user has selected and dragged it.).

Regarding claim 10, this claim is rejected under the same rationale as claim 1.

Regarding claim 11, Engle discloses the display apparatus according to claim 1, wherein said one of the plurality of display surfaces is placed on a side of an observer (The foreground display 1 shown in Figure 2 is placed on a side of an observer in order to detect user input.).

Regarding claim 13, Engle discloses the display apparatus according to claim 1, wherein the image portion specified by the image specification device is displayed in predetermined colors on the one of the plurality of display surfaces (The examiner interprets that since the image is already going to be displayed in color, that the image portion selected is going to be display in these predetermined colors on one of the display surfaces.).

Regarding claim 17, Engle discloses the display apparatus according to claim 1, wherein the image portion not specified by the image specification device is displayed in predetermined colors on the other display surface (The examiner interprets that since

the image is already going to be displayed in color, that the image portion not selected is going to be display in these predetermined colors on one of the display surfaces.).

Regarding claim 19, Engle discloses the display apparatus according to claim 1, wherein, of the plurality of display surfaces, display surfaces other than at least a rearmost-side display surface comprise semitransparent display devices (Figures 2a and 2b show that the background screen 2 can be seen through foreground screen 1, meaning that the foreground screen is at least semitransparent.).

Regarding claim 20, Engle discloses the display apparatus according to claim 19, wherein the semitransparent display devices are liquid crystal display devices or Electro-Luminescence display devices (Abstract).

Regarding claim 22, Engle discloses the display apparatus according to claim 1, wherein the plurality of display surfaces of the three-dimensional display device are disposed in tandem in a direction of a line of sight of an observer (Figures 2a and 2b show that the display devices are in tandem in the line of sight of an observer.).

Regarding claim 25, this claim is rejected under the same rationale as claim 1.

Regarding claim 26, this claim is rejected under the same rationale as claim 1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2, 6-7, 12, 14-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engle (WO 02/084637 A1).

Regarding claim 2, Engle discloses the display apparatus according to claim 1, wherein the image specification device enables the image portion to be specified based on results of a determination of predetermined items or a conditional branch (Figure 3 and page 9, lines 1-15 explain that as the user moves his/her finger across the screen the image is changes in a predetermined fashion to cause a sensation of moving to the user.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to combine the different embodiments taught by Engle in order to allow considerable amounts of interaction between the user and the screens.

Regarding claim 6, Engle discloses the display apparatus according to claim 1, further comprising an image selection device for selecting images, which are to be displayed subsequently on the plurality of display surfaces in correspondence with the image portion specified by the image specification device, from images generated by the image generation device, wherein the control device controls the three-dimensional display device to display at least part of the image as selected on said one of the plurality of display surfaces in place of or in addition to the image portion specified by the image specification device (Figure 3 and page 9, lines 1-15 explain that there are predetermined images 7, 8 and 9 shown on the display and as the user moves his/her finger across the screen a predetermined event takes place of moving the image 7 off of the display and moving image 8 to the foreground display in place of specifying the image.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to combine the different embodiments taught by Engle in order to allow considerable amounts of interaction between the user and the screens.

Regarding claim 7, Engle discloses the display apparatus according to claim 1, wherein the image specification device enables at least part of the image portion, which

is displayed on said one of the plurality of display surfaces, to be further specified and disables the image portion displayed on the other display surface from being specified (Figure 1 shows that the cursor is moved between screens 1 and 2 and when it is on screen 1 it can only be moved on screen 1, which disables the items shown on display 2 from being selected and/or modified.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to combine the different embodiments taught by Engle in order to allow considerable amounts of interaction between the user and the screens.

Regarding claim 12, Engle discloses the display apparatus according to claim 1, wherein the image portion specified by the image specification device is displayed with high brightness on the one of the plurality of display surfaces (Page 5, line 31 to page 6, line 4 explains that a ring of light appears and make the portion selected get brighter with increasing force.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to combine the different embodiments taught by Engle in order to allow considerable amounts of interaction between the user and the screens.

Regarding claim 14, Engle discloses the display apparatus according to claim 1, wherein the image portion specified by the image specification device is displayed in an enlarged state under a predetermined magnification on the one of the plurality of display surfaces (Figure 3 shows that as the screen is specified by a user’s finger that the

displayed image 8 moves to the foreground screen 1, meaning that to the user this image will appear larger.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to combine the different embodiments taught by Engle in order to allow considerable amounts of interaction between the user and the screens.

Regarding claim 15, Engle discloses the display apparatus according to claim 1, wherein the image portion specified by the image specification device is displayed with light blinking in a predetermined cycle on the one of the plurality of display surfaces (Page 5, line 31 to page 6, line 4 explains that a ring of light appears and make the portion selected get brighter with increasing force, such as having 4 levels of light intensity, meaning that the light intensity of the ring will change as more pressure is applied at predetermined levels, so that is a user pressed down and released, and continued the glow would appear to blink.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to combine the different embodiments taught by Engle in order to allow considerable amounts of interaction between the user and the screens.

Regarding claim 16, Engle discloses the display apparatus according to claim 1, wherein the image portion not specified by the image specification device is displayed with low brightness on the other display surface (Page 5, line 31 to page 6, line 4 explains that a ring of light appears and make the portion selected get brighter with

increasing force, this means that the items not selected will appear darker than the image selected.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to combine the different embodiments taught by Engle in order to allow considerable amounts of interaction between the user and the screens.

Regarding claim 18, Engle discloses the display apparatus according to claim 1, wherein the image portion not specified by the image specification device is displayed in a reduced state under a predetermined magnification on the other display surface (Figure 3 shows that as the screen is specified by a user’s finger that the displayed image 8 moves to the foreground screen 1, meaning that to the user this image will appear larger, and the image 9 which remains on the background display 2 will appear smaller compared to the image 8.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to combine the different embodiments taught by Engle in order to allow considerable amounts of interaction between the user and the screens.

6. Claims 21 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engle (WO 02/084637 A1) in view of AAPA (Page 1, line 11 to page 3, line 9.).

Regarding claim 21, Engle discloses the display apparatus according to claim 1.

Engle fails to teach wherein the plurality of display surfaces include composite display surfaces through half-mirrors.

AAPA discloses of a plurality of display surfaces including composite display surfaces through half-mirrors (Page 2, lines 13-19).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to make the plurality of display surfaces taught by Engle include composite surfaces through half-mirrors as taught by AAPA in order to allow a semi-transparent object or an object behind to be seen through.

Regarding claim 23, Engle discloses the display apparatus according to claim 1.

Engle fails to teach wherein the three-dimensional display device is a three dimensional display device, which utilizes any one of a barrier system having slits or pin-holes, and includes an image to be displayed for a left eye of an observer and an image to be displayed for a right eye of the observer, as the plurality of display surfaces.

AAPA discloses of a three-dimensional display device which utilizes any one of a barrier system having slits or pin-holes, and includes an image to be displayed for a left eye of an observer and an image to be displayed for a right eye of the observer, as the plurality of display surfaces (Page 1, line 11 to page 2, line 1 explain that shutter glasses are used to shield the right and left eyes so as to provide for the three dimensional image, where the examiner interprets that the glasses would contain slits such that the user to could the display.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to make the plurality of display surfaces taught by Engle into a barrier system having slits as taught by AAPA in order to provide an alternative method to providing the three dimensional display to the observer.

Regarding claim 24, Engle discloses the display apparatus according to claim 1.

Engle fails to teach wherein the three-dimensional display device is a three-dimensional display device, which utilizes a lenticule system and includes an image to be displayed for a left eye of an observer and an image to be displayed for a right eye of the observer, as the plurality of display surfaces.

AAPA discloses of a three-dimensional display device which utilizes a lenticule system and includes an image to be displayed for a left eye of an observer and an image to be displayed for a right eye of the observer, as the plurality of display surfaces (Page 1, line 11 to page 2, line 1 explain that shutter glasses are used to shield the right and left eyes so as to provide for the three dimensional image, where the examiner interprets that the glasses would contain slits such that the user to could the display.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to make the plurality of display surfaces taught by Engle include a lenticule system as taught by AAPA in order to provide an alternative method to providing the three dimensional display to the observer.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Harrold et al. (US 6,703,989) discloses a stereoscopic display comprising a spatial light modulator such as a liquid crystal display device.

Suyama et al. (US 6,525,699) disclose a three-dimensional representation method for generating a three-dimensional image by displaying two-dimensional images on a plurality of image planes located at different depth positions.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS

26 September 2006

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Amr A. Awad", with a long, sweeping horizontal line extending to the right.